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# United States Patent [19]

Janecke

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[54] ADAPTIVE AUTOMATED TRANSMISSION  
DOWNSHIFT CONTROL.

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[\*] Notice: This patent is subject to a terminal disclaimer.

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## Related U.S. Application Data

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B60K 41/02

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[57]

## ABSTRACT

A method/system for controlling downshifting in an automated mechanical transmission system (10) utilized on a vehicle. When a downshift from a currently engaged ratio (GR) is required ( $ES < ES_{D/S}$ ), skip downshifts ( $GR_{TARGET} = GR - N, N > 1$ ) and then single downshifts ( $GR_{TARGET} = GR - 1$ ) are evaluated in sequence. If throttle demand is high ( $THL > REF$ ), skip downshifts are evaluated to determine if they can be completed at no greater than a reference value ( $ES_{DES} = ES_{DES-DEFAULT} + offset$ ), which is higher than otherwise ( $ES = ES_{DES-DEFAULT}$ ) allowed.

10 Claims, 4 Drawing Sheets

